

WHAT IS CLAIMED IS:

1 1. A method for treating a blood vessel, said method comprising injecting
2 an estrogen into a location beyond the endothelium of the blood vessel.

1 2. A method as in claim 1, wherein the blood vessel is an artery.

1 3. A method as in claim 2, wherein the artery is a coronary artery.

1 4. A method as in claim 1, wherein the estrogen is an estradiol.

1 5. A method as in claim 4, wherein the estradiol is selected from the
2 group consisting of 17-beta-estradiol and estradiol cypionate.

1 6. A method as in claim 1, wherein the blood vessel is at risk of
2 hyperplasia.

1 7. A method as in claim 6, wherein the estrogen is injected proximate the
2 region of hyperplasia risk.

1 8. A method as in claim 1, wherein the blood vessel has regions of
2 vulnerable plaque.

1 9. A method as in claim 8, wherein the estrogen is injected proximate a
2 region of vulnerable plaque.

1 10. A method as in claim 1, wherein injecting comprises introducing a
2 catheter into a lumen of the blood vessel and advancing a needle from the catheter, wherein
3 the estrogen is injected through the needle.

1 11. A method as in claim 10, wherein the needle is advanced into a
2 perivascular space beyond the outside of the endothelium.

1 12. A method as in claim 11, wherein the needle is advanced into the
2 adventia surrounding the blood vessel.

1 13. A method as in claim 1, wherein the estrogen is injected in an amount
2 sufficient to permeate circumferentially around the endothelium and into the adventia over an
3 axial length of at least 1 cm.

1 14. A method as in claim 1, wherein the needle is advanced in a radial
2 direction to a depth in the adventitia equal to at least 10% of the mean luminal diameter at the
3 blood vessel location.

1 15. A method as in claim 14, wherein the depth is a distance in the range
2 from 10% to 50% of the mean luminal diameter.

1 16. A system for treating a blood vessel, said system comprising:
2 an amount of an estrogen, and
3 an intravascular catheter having a needle for injecting the estrogen into a
4 location beyond the endothelium of the blood vessel.